

**GOVERNMENT OF INDIA
EARTH SCIENCES
LOK SABHA**

UNSTARRED QUESTION NO:2314
ANSWERED ON:30.11.2016
Disaster Prone Areas
Chudasama Shri Rajeshbhai Naranbhai

Will the Minister of EARTH SCIENCES be pleased to state:

- (a) whether the Indian sub-continent is among the most disaster prone areas in the world and if so, the details thereof and the reasons therefor;
- (b) whether the Department of Meteorology has been able to forecast natural calamities accurately and if so, the details thereof;
- (c) whether adequate technology is available in the country to forecast natural calamities such as earthquake, cyclone, drought and floods etc. and if so, the details thereof and if not, the reasons therefor along with the action taken/proposed to be taken by the Government in this regard;
- (d) whether the Government has drawn any action plan to ensure safety of life and property in the event of natural calamities and also to install early warning systems in all the States; and
- (e) if so, the details thereof and the time by which such mechanism is likely to be put in place?

Answer

THE MINISTER OF STATE FOR MINISTRY OF SCIENCE AND TECHNOLOGY AND MINISTRY OF EARTH SCIENCES
(SHRI Y. S. CHOWDARY)

(a) Yes Madam. The Indian sub-continent is prone to many disasters like tropical cyclones, floods, droughts, landslides, earthquakes, severe thunder storms and lightening etc. The north India Ocean is one of the highly vulnerable regions for tropical cyclone activity. Earthquakes occur along the "Alpine-Himalayan belt", which also runs through the Andaman Sumatra arc, Indo-Burmese arc, and Himalayan arc. The continued collision/ subduction of Indian plate with the Eurasian and Sunda plates cause these earthquakes. A few earthquakes also occur within the peninsular shield region of India, which are grouped under intra-plate category and occur due to internal deformation of the plate. Over India, floods generally occur during the southwest monsoon season (June to September) in the major river basins. Floods also occur during post-monsoon seasons (October to December) over the south-eastern parts of the country.

(b) Yes Madam. India Meteorological Department (IMD) has been successful in forecasting the track and intensity of the tropical cyclones. The accurate forecasts of recent cyclones, Phailin and Hudhud saved thousands of human lives. To date, there is no proven scientific technique available, anywhere in the world, to predict/ forecast the occurrence of earthquakes with reasonable degree of accuracy with regard to space, time and magnitude.

(c) IMD is responsible for monitoring, detection and forecasting of weather and climate extremes including severe weather events such as cyclones, heavy rainfall, extreme temperature etc. The Government has initiated a comprehensive modernization programme for IMD covering upgradation of (i) observation systems (ii) advanced data assimilation tools (iii) advanced communication and IT infrastructure (iv) high performance computing systems and (v) intensive/sophisticated training of IMD personnel to facilitate the implementation of advanced global/regional/ meso-scale prediction models for improving the accuracy of weather forecasts in all temporal and spatial scales and for quick dissemination of weather forecast assessments/warnings to the users.

In order to meet specific requirements of flood forecasting, which is provided by Central Water Commission (CMC), IMD operates Flood Meteorological Offices (FMOs) at thirteen locations viz., Agra, Ahmedabad, Asansol, Bhubaneswar, Guwahati, Hyderabad, Jalpaiguri, Lucknow, New Delhi, Patna, Srinagar, Bangalore and Chennai. Apart from this, IMD also supports Damodar Valley Corporation (DVC) by providing Quantitative Precipitation Forecast (QPF) for Damodar river basin areas for their flood forecasting activities. During the flood season, FMOs provide valuable meteorological support to the Central Water Commission (CWC) for issuing flood warnings in respect of the 43 rivers of India covering 146 river basins. CWC is working in close association with IMD and State Governments for timely flood forecast whenever the river water level rises above warning level. To meet the requirement of State Governments, IMD Officers invariably attend all the meetings called by the State Governments for reviewing the preparedness on floods by various agencies.

Monitoring of the seasonal (monthly/ weekly rainfall scenario with reference to respective normal (mean value) is only carried out by IMD to regularly assess and identify zones of deficit rainfall leading to drought conditions, the declaration of which remains with the mandate of Ministry of Agriculture in consultation with various state governments.

National Center for Seismology (NCS) is monitoring earthquake activity in and around the country round the clock through its national seismological network along with other global/regional seismicity monitoring networks. Efforts are being made world-over including India, to monitor and study various earthquake precursory phenomena in critical seismotectonic regions, which would not only help understand the earthquake generation processes better but also lead to identifying possible earthquake precursors, which may serve as useful predictors in future.

The Indian Tsunami Early Warning Centre (ITEWC) has all necessary infrastructure and capabilities to give tsunami advisories to India

as well as to Indian Ocean countries. ITEWC has been designated as one of the Regional Tsunami Service Providers for the entire Indian Ocean Region by the Intergovernmental Oceanographic Commission (IOC) of UNESCO on 12 October 2011. Since then, ITEWC is providing tsunami warnings and related services to all countries in the Indian Ocean Rim (24 Countries) beyond fully serving the India's coastline / Islands.

(d) Yes Madam

(e) IMD and NCS have existing mechanisms to coordinate with various state authorities. As such IMD provides inputs to State Crop Weather Watch Group, State Disaster Management Authorities, and Relief Commissioners. During cyclones a coordination mechanism with district authorities has also been established. Round the clock weather surveillance and forecasting system is operational at IMD for continued monitoring, detection and warning of Cyclones; river basin scale meteorological support (monitoring and warning) for CWCs river flood warning system and other severe weather systems. Operational forewarning systems are already in place by the CWC for river basin scale flood. Fully organized protocol exists between IMD, CWC and with the various designated disaster management authorities at centre and state levels for dissemination of weather forecasts and warning alerts. The ITEWC is capable of detecting tsunamigenic earthquakes occurring in the Indian Ocean as well as in the Global Oceans within 10 minutes of their occurrence and disseminates the advisories to the concerned authorities within 20 minutes through email, fax, SMS, GTS and website.